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A Bright Spark
FIRE Allows U.S. Intel Agencies To Learn From 'What Ifs'

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In its report calling for U.S. intelligence agency reform, the National Commission on Terrorist Attacks Upon the United States, appointed by the U.S. Congress, cited a lack of coordination among the various intelligence agencies and need for a more integrated approach.

A revolutionary intelligence modeling and simulation system is in the works that could go a long way toward helping intelligence agencies cut across their individual stove-piped systems and share information. Although in its early prototype stage, the Future Intelligence Requirements Environment (FIRE) system has caught the attention of many potential military and government customers.

FIRE is a database and suite of analysis tools that will help military and government leaders make the best move in situations ranging from simple combat scenarios to broad challenges such as when and how a certain terrorist is likely to strike. The system has been fast-tracked and fully funded so that initial capability can start next year rather than in 2009 as originally planned. Under a spiral development program, full capability is planned for 2006.

Behind FIRE is one of the world's top intelligence agencies, the U.S. National Geospatial-Intelligence Agency (NGA), which changed its name last year from the National Imagery and Mapping Agency.

FIRE is chiefly aimed at analysis of intelligence requirements and systems 10 to 15 years in the future. But its unique ability to store and use data across multiple disciplines and agencies in an integrated fashion has potential users seeing shorter-term applications.

FIRE can play out all the possibilities and options based on stacks of accumulated data being collected from sensors, and from known data about friendly and enemy platforms and systems. Armed with that vast amount of multi-intelligence information, its modeling and simulation tools can play out the "what ifs."

FIRE is made up of two key parts:

* A database sourced from multiple intelligence agencies.

* A suite of analysis and simulation tools that will help intelligence analysts make decisions.

Subject-matter experts across many fields are filling the database with stacks of facts on such things as weapon platforms, sensor footprints and other systems. All

these facts are checked and validated before they become a part of FIRE's database.

The suite of analysis tools, meanwhile, allows an analyst to fully investigate the interactions of those platforms and systems through simulation and modeling.

"FIRE gives us insights. This is not about giving us the answers, but about giving us the insights we need to get the answers," said John Cole, FIRE deputy program manager at the NGA's Frontiers office in Chantilly, Va. "Should I link two sensors to get a better answer? It's about modeling before we go about. It's all about the 'what is the redundancy and what can we do differently?' "

NGA aims to open a FIRE joint program office by the end of this year that would include mission partners and oversee how the tool is developed and used.

"We have taken the idea of FIRE as a multi-intelligence tool and put it out there as a tool that can be used by everyone else," said FIRE Program Manager Elizabeth Mosher. "This will not be proprietary. This is not a tool that we alone can own because we don't own other agency tools. It will be a community tool where everyone will have equal access."

Keith Masback, director of the Frontiers office, said "FIRE takes us to another level of depth with the multi-int [intelligence] environment. It gives you the ability to have a relative value. It's not just a brute force numbers game. I am not aware of anyone who has ever done that."

Although NGA would not comment on the potential for sharing FIRE with international allies, it seems clear that the system will reach outside of the United States. Robert Cardillo, NGA director, source operations and management directorate, said the way to tackle the "much more subtle, much more complex and much more mobile" threats faced today requires a different mindset and "assumes an allied, coalition, joint effort."

Until FIRE came along, said Cardillo, there has been "a dearth of applications" that worked across all imaging and intelligence sensors. "It used to be OK to be segregated, but that's not the case any more. No one is saying we need to hold on to our stovepipes."

Key industry partners on FIRE include Booz Allen Hamilton, which is under a $17 million, four-year contract to support system development, and Analytical Graphics, which provides under license its STK analysis and visualization software that underpins FIRE's modeling and simulation graphics.

Keith Hall, Booz Allen vice president, said FIRE will pull together information based on hard facts and eliminate the bias that might naturally reside with an official from a particular agency or military service.

"This is a good example of a real tough challenge, not from a technical point of view, but from the point of view of getting all the agencies together to participate in something that could have so much significance as you look down the future road of the intelligence community," Hall said.

“When you look at the types of problems that the world faces in the future, you see turbulence and the unexpected. I think we will be faced with a need for a very agile capability for national security and the international community. We don’t know where, when or what forms those threats will take, but FIRE will give us insight. FIRE represents a reform of the intelligence community.”